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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,836	07/31/2003	Alison J. McMillan	84801 3019 PDG	1960

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MANELLI DENISON & SELTER
2000 M STREET NW SUITE 700
WASHINGTON, DC 20036-3307

EXAMINER

PATEL, VISHAL A

ART UNIT	PAPER NUMBER
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3676

DATE MAILED: 02/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,836

Applicant(s)

MCMILLAN, ALISON J.

Examiner

Vishal Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 20-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/30/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 20-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 10/20/04.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 8, 10, 15 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Heshmat (US. 5,833,369).

Regarding claim 1: Heshmat discloses a seal (48) comprising a seal edge (edge of 48 that is adjacent 20) *to be held in close proximity in use to a relatively rotating surface (intended use)*. The edge being reinforced by creases (creases on member 48, which form corrugations on member 48 and the creases extend away from the edge) extending away from the edge. A desired distribution of perforations (perforations or slots in 48) is provided above the edge *to facilitate air pressure differential across the edge as the rotating surfaces rotates in relation to the edge (intended use)* and the rotating surfaces rides upon an enhanced pressure created by air leakage through the perforations (the seal has a wedge film that is produced by the gas that is pumped between the seal).

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Regarding claim 2: The seal has several slots (slots in 48) to facilitate flexibility. The slots are formed between the creases.

Regarding claim 4: The seal includes a plurality of edges (edges of 48 and 49) in a seal assembly (seal assembly of Heshmat) and these edges are presented upon respective spaced seal elements (each elements 48 and 49) of the seal assembly (the elements are placed upon each other).

Regarding claims 5-6: The perforations are graded outwardly from the edge (this is the case since first two perforation close to the edge are small, two more perforations above the first two perforation are larger and so on). The perforations near to the edge are relatively small compared to perforations further displaced from the edge)

Regarding claim 8: The perforations are configured from one side to the other to facilitate airflow to achieve the desired air pressure differential across the edge (all perforations are thorough one side of the seal to an opposite side of the seal).

Regarding claim 10: The creases in the adjacent spaced seal elements are in a respectively opposed relationship relative to each other (this is the case since the crease in seal element 48 are in one direction and the creases in seal element 68 are in an opposed direction).

Regarding claim 15: The edge is substantially straight between the crease (the edge is substantially straight between two creases in the seal element 48).

Regarding claim 17: One of a stiffener fold and a stiffener element is secured to the seal to further reinforce each edge (this is the case since element 49 is secured to the seal).

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Regarding claim 18: The seal is associated with an air deflector in order to further facilitate air pressure differential across the edge (any of elements 60 or 62 are considered to be an air deflector).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comery (US. 2,871,038).

Comery discloses a seal (14) comprising a seal edge (edge of 14 that is near shaft 18) to be held in close proximity in use to a relatively rotating surface (surface of rotor 18). The edge is reinforced by creases (creases in 14) extending away from the edge (the creases extend away from the edge). The creases are angular relative to the edge in order to form a ring with sails defined between respective adjacent creases (the crease are angular relative to the edge to form a ring with sails, as seen in figure 5). The edge is substantially curved between the creases. the edge is formed upon a spiral, which extends form a number of cycles to form the seal (the edge is annular and forms a ring). Comery discloses the invention substantially as claimed above but fails to disclose that a desired distribution of perforations is provided above the edge *to facilitate air pressure differential across the edge as the rotating surface rotates in relation to the edge (intended use)*. Heshmat discloses a seal to have an edge and plurality of perforations extending away from the edge (edge of 48 and slits that form strips 50). It would have been obvious to one

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having ordinary skill in the art at the time the invention was made to configure the seal of Comery to have a distribution of perforations above the edge as taught by Heshmat, to provide flexibility and stiffness (column 6, lines 57-65 of Heshmat).

6. Claims 2, 11-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tseng et al (US. 5,568,931) in view of Comery (US. 2,871,038).

Tseng discloses a seal comprising a seal edge (edge of 90), the edge includes slots (94) to facilitate flexibility in the edge when held in close proximity to a rotation surface (86). The slots extend substantially perpendicular to the major axis of the edge (the slots are perpendicular to the major axis of the edge). The slots terminate in one of a keyhole and a bulbous end (the slot 94 terminates in a keyhole or a bulbous end 98). Tseng discloses the invention substantially as claimed above but fails to disclose that the seal has creases extending away from the edge. Comery discloses a seal having an edge and creases (20) extending away from the edge. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the seal of Tseng to have creases as taught by Comery to provide rigidity and to reduce cost by using thinner strips (column 2, lines 64-66 of Comery).

7. Claims 1-2, 7, 13 and 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grondahl (US. 6,644,667) in view of Comery (US. 2,871,038).

Grondahl discloses a seal (24) having a seal edge (edge of seal near 16), the edge having a desired distribution of perforations or slots (perforations as seen in figures 5-8), the perforations or slots are varying lengths extending from the edge (the width of seal 24 is varied column 5, lines 19-20, hence the slots would be varying lengths, where a larger width of seal 24 would have a larger slot and a smaller width would have a smaller slot) and the seal is formed upon a

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spiral which extends for a number of cycles to form the seal (24). The perforations are graded outwardly from the edge and the perforations near the edge have a greater population density per unit area compared to perforations further displaced from the edge (this is the case since the perforations near the area have a larger width than the perforations away from the edge, the slot or perforations are of V-shape, as seen in figures 7-8). Grondahl disclose the invention substantially as claimed above but fail to disclose that the seal has creases extending away from the edge. Comery discloses a seal having an edge and creases (20) extending away from the edge. It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the seal of Tseng to have creases as taught by Comery to provide rigidity and to reduce cost by using thinner strips (column 2, lines 64-66 of Comery).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Beck et al, Morley et al, Hoffman et al and Gay teach a seal similar to applicants' seal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is (703) 308-8495. The examiner can normally be reached on Monday through Friday from 7:30 PM to 4:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford, can be reached on (703) 308-2978.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168. Technology Center 3600 Customer Service is available at 703-308-1113. General Customer Service numbers are at 800-786-9199 or 703-308-9000. Fax Customer Service is available at 703-872-9325.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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or faxed to: 703-872-9326, for formal communications for entry before Final action: or,
703-872-9327, for formal communications for entry after Final action.

Hand-delivered responses should be brought to Crystal Park Five, 2451 Crystal Drive,
Arlington, Virginia, Seventh Floor (Receptionist suite adjacent to the elevator lobby).

VP

January 19, 2005

A handwritten signature in black ink, appearing to be 'HS' with a long horizontal line extending to the right.

Heather Shackelford
Supervisory Patent Examiner
Tech. Center 3600